

MAGNETIC TUNNEL JUNCTION DEVICE WITH ETCH STOP LAYER AND DIELECTRIC SPACER

ABSTRACT

A method of making a magnetic tunnel junction device is disclosed. The magnetic tunnel junction device includes a discrete magnetic tunnel junction stack and an electrically non-conductive spacer in contact with a portion of the discrete magnetic tunnel junction stack. The spacer electrically insulates a portion of the magnetic tunnel junction stack from an electrically conductive material used for a dual-damascene conductor that is formed in a self-aligned via this is positioned over the discrete magnetic tunnel junction stack. The method includes forming an electrically conductive etch stop layer on a magnetic tunnel junction stack. In subsequent etching steps, the etch stop layer protects one or more layers of magnetic material in the discrete magnetic tunnel junction stack from chemical erosion caused by an etch material, such as an etch material that includes the chemical fluorine (F), for example.